2-2 Linear Equations
2-3 Slope

Linear equation--variables cannot be multiplied together or appear in the denominator; exponent should be one

Graph-line

Standard Form--Ax + By = C, where
$A \geq 0$ and A and B are both not zero
A, B, C $\in$ Z whose GCF is 1

Slope-intercept form y = mx + b

Put the following in standard form:

ex 1:
y = 3x - 9

$9 = 3x - y$
$3x - y = 9$

ex 2:
$\frac{-2}{3}x = 2y - 1$ $\times 3$

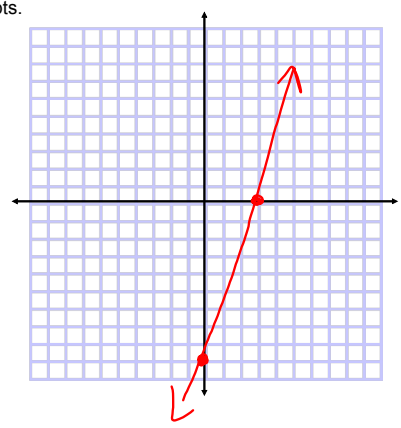
$2x = -6y + 3$
$2x + 6y = 3$

ex3:
8x - 6y + 4 = 0

$8x - 6y = -4$
$4x - 3y = -2$

Graph using intercepts.

ex 1
$3x - y = 9$
(0, -9)
(3, 0)



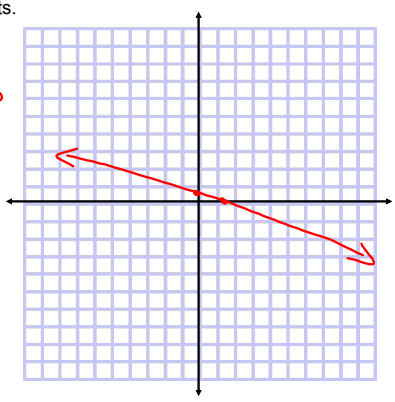
Graph using intercepts.

ex 2

$2x+6y=3$

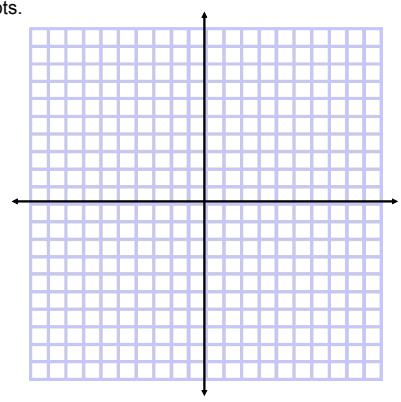
$(0, \frac{1}{2})$

$(\frac{3}{2}, 0)$



Graph using intercepts.

ex 3



How else do you graph?

Slope

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

Calculate the slope for:
(1,3) and (-2,-3)

$m = \frac{3 - -3}{1 - -2} = \frac{6}{3} = 2$

$m = 2$

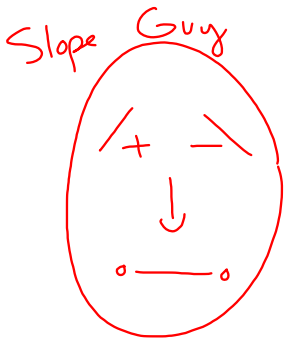
Special slopes:

Horizontal Line

$m = 0$ Zero

Vertical Line

undefined (no slope) No slope



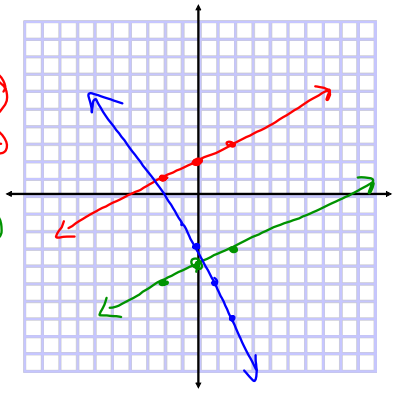
Graphing:

$y = mx + b$

$y = \frac{1}{2}x + 2$ $m = \frac{1}{2}$ $(0,2)$

$y = \frac{1}{2}x - 4$ $m = \frac{1}{2}$ $(0,-4)$

$y = -2x - 3$ $m = -2$ $(0,-3)$



Parallel lines

same slope

Perpendicular lines

opposite + reciprocals

(product of slopes = -1)

hw

p66
27, 33, 37, 43-49odd

p71-72
10, 11, 17, 19, 22, 23